

# Feeding for low weigh-backs in high-producing herds

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Feed continues to be the highest individual cost in confined dairy production systems. According to the USDA Economic Research Service (2016), during 2015 feed costs represented 56 percent of the total cost of producing milk in the U.S., progressively increasing during the last decade. With feed comprising the largest operating expense, nutrition and feeding management practices are the key profit drivers for most dairies. To enhance profitability, it is very important to reduce feed costs without negatively affecting cow production, health or reproduction.

One of the areas of focus for reducing feed costs is the amount of feed weigh-backs (refusals, orts) generated daily on the farm. Previous management recommendations of keeping a weigh-back of about 5 percent is no longer feasible in the current economic environment. At current feed costs of 12.5 cents per pound of dry matter (DM), overfeeding a high-production cow 3 to 5 percent extra increases daily feed costs by 20 to 40 cents per day, or \$73 to \$146 per year. Part of that expense may be recovered if the weigh-backs are fed to other groups of animals (such as late-lactation cows, heifers or dry cows) or sold to other beef or heifer operations; however, the value of the weigh-backs is always lower than the original TMR.

In addition, during warm weather (May to September), the weigh-backs sometimes have to be discarded due to spoilage. Therefore, there are economic benefits of feeding for low weigh-backs as long as overall cow performance is not affected.

## Research update

Three recent research studies showed that this strategy is becoming more popular in the dairy industry:

◆ An observational study conducted by the University of Guelph evaluated feeding management practices and

milk production in 22 freestall herds located in eastern Ontario, Canada. The authors indicated herds were feeding for low feed weigh-backs, with 32 percent of herds feeding for less than 2 percent weigh-back and 73 percent feeding for less than 5 percent.

◆ A feed management survey including data from 120 California dairies reported that targeted weigh-backs were 2 percent or less (50 percent of producers), 2 to 5 percent

(34 percent of producers) or more than 5 percent (16 percent of producers).

◆ In an observational study performed in 50 freestall dairy farms in Minnesota, most producers indicated feeding for a maximum of 5 percent weigh-backs, with some targeting 2 to 3 percent.

Researchers in 2005 conducted a controlled trial to evaluate the effects on lactating cow performance

of feeding for two different weigh-backs (3.4 and 5.5 percent). Cows were housed in freestalls and fed individually. They could find no statistical differences in daily DM intake (56.3 and 57.4 pounds per day), 3.5 percent fat-corrected-milk (91.3 and 93.4 pounds per day) and feed efficiency (1.57 and 1.56 pounds, 3.5 percent fat-corrected milk per pound DM offered) for 3.4 and 5.5 percent

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weigh-back rate, respectively. In addition, the feedbunk management strategy did not affect number of meals per day (7.7) or DM intake per meal (7.5 pounds).

These findings were corroborated on the observational study from the University of Guelph cited previously. The authors found that weigh-backs from 22 commercial herds (average 3.5 percent; minimum 0.87 percent and maximum 9.3 percent) were not associated with milk yield, DM intake or feed efficiency.

On the other hand, having the bunk empty could cause slug feeding and produce adverse effects on milk production and cow health. Researchers in 2008 carried out a study to determine the effect of non-dietary factors in 47 dairy herds fed exactly the same lactating rations. Herds fed to ensure feed weigh-backs tended to produce 3.5 pounds more milk daily than those that did not allow feed weigh-backs.

### Practical strategies

The following feeding management practices need to be addressed to implement a successful low weigh-back strategy:

#### Dry matter content adjustment of silages

Researchers from Ohio State University evaluated the short-term DM variation in corn and haycrop silages on eight farms near Wooster, Ohio. Corn silage samples taken daily during a 14-day period had a range in DM concentration of 7.3 percentage units. Dry matter concentration ranged by 5.1 percentage units in the most consistent corn silage and by 10.4 units in the most variable. For haycrop silage, DM was most variable, with an average range of 11.8 units (3.4 to 19.1).

**Recommendation:** Test silages daily and adjust DM if the new estimation differs by more than 1 percentage point from the previous DM.

#### Feeding accuracy

Researchers from Virginia Tech demonstrated that 4 percent of all TMR loads were underfed by more than 400 pounds in nine dairy farms located in the Chesapeake Bay. On the other hand, frequency of overfeeding in excess of 400 pounds was 33 percent. To avoid excess of weigh-backs or empty feedbunks, accuracy when loading ingredients into the mixer wagon is extremely important.

**Recommendation:**

◆ Ingredients from upright bins: less than 15 pounds fresh matter

◆ Ingredients from open-sided commodity sheds: less than 25 pounds fresh matter



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Reduced weigh-back requires intensive feed management to ensure the cows have access to feed at all times. A feed push-up four to five hours prior to delivering fresh feed is essential to reach that goal.

Staff photo.

◆ Dry hay: less than 25 pounds fresh matter

◆ Silages and wet corn co-products (30 to 60 percent DM): less than 50 pounds fresh matter

#### First time feeding

Fresh TMR should be delivered each day at the same time. If the TMR is delivered one hour late of the schedule, the cows will have 4 percent more time to consume the feed, and the feedbunk may be emptied before the fresh TMR is dropped. On the other hand, the weigh-backs will be in excess the next day.

*Recommendation:* A deviation of less than 10 minutes from the scheduled feeding time, and cleaning out the feedbunks within 10 minutes of fresh TMR delivery

#### Feed push-ups

Frequent and scheduled push-ups are essential to ensure all cows have feed within their reach at all times. Feed push-up frequency was evaluated in the feeding management studies discussed previously:

◆ *Ontario:* Feed push-up frequency ranged from zero to 20 times per day, with an average frequency of 4.6 times per day (36 percent of herds pushed up feed less than four times per day).

◆ *Minnesota:* The frequency of feed push-up was 5.4 times daily (range three to 12).

◆ *California:* Feed was pushed daily between one and four times (47.7 percent of dairies), five and eight times (42.4 percent), and nine or more times (9.9 percent).

Overall, these data indicate more attention should be paid to feed push-ups in North American commercial dairies. When feeding for low weigh-backs, push-ups during the four to five hours before delivering fresh feed is required because the amount of feed available is becoming scarce. Moreover, to keep TMR available at each feed station, the TMR should be evenly distributed along the feedbunk.

*Recommendation:* Daily feed push-ups scheduled once per hour

#### Pen head counts

Open communication between the herd manager and the feeding technicians regarding pen movements is crucial when feeding for low weigh-backs. Because of the high number of cow movements in the close-up dry and fresh cow pens, it is recommended to feed these pens for a higher weigh-back rate (8 to 10 percent).

#### Summary

Feeding for low weigh-back rates (2 to 3 percent) could reduce feed costs. This strategy is feasible in high-producing herds, but it requires a high level of feeding management to assure feed availability at all times. The main areas of focus should be management practices such as feeding and push-up times, ingredient loading, DM determination on silages and pen head counts. **PD**

*References omitted but are available upon request.*

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